

SS-520-5 Rocket



SS-520

This version is a two-stage sounding rocket or three-stage orbital rocket, which uses S-520 as the first stage. Unlike the previous S-Series rockets, the SS-520 is intended to test how small an orbital launch vehicle can be.

When used as a suborbital sounding rocket, it can launch a 140 kilograms (310 lb) payload to an altitude between 800 and 1000 km. The first two SS-520s were launched in 1998 and 2000 respectively and successfully carried their payloads on sub-orbital missions.

After further development and the addition of a third stage, the fourth and fifth instances of the SS-520 were launched on full orbital trajectories.

SS-520-4

This is the fourth vehicle configuration of the SS-520. It includes a small third stage, and can put a 4 kg 3U CubeSat into a 180 km × 1500 km orbit with an inclination of 31°. It is engineered to place the payload into an orbital speed of more than 17,000 mph (27,000 kilometers per hour).

It is a technology demonstration with no serial production planned.

Its maiden launch was supposed to have taken place on 10 January 2017, however it was delayed due to inclement weather (wind speeds).

It was launched January 14, 2017, but failed to reach orbit due to a loss of telemetry. If successful, it would have become the smallest and lightest vehicle to ever put an object in orbit; surpassing the Japanese Lambda-4S. Telemetry was lost 20 seconds into flight. 3 minutes into the flight, controllers sent an abort code commanding the second stage not to ignite after separation and the rocket fell into the ocean within the range safety area.

SS-520-5

A second attempt was made on February 3, 2018.

This time, the rocket (SS-520-5) reached orbit and successfully deployed the TRICOM-1R, a 3U CubeSat. **It's 2018 launch made it the smallest orbital rocket both in mass and height.**

Specifications

Height – 31 feet (9.54 meters)

Weight – 2.9 tons (2.6 metric tons)

Diameter – 20 inches (52 centimeters)

Payload to Low-Earth Orbit – ~9 lbs (4 kg)



3

4

1

1 to 2 connector

5

6

Color back Black

Technical drawing of a roof structure. The top part shows four cross-sections of a roof with a central valley and side slopes. The roof is labeled with '7' in red. The side slopes are orange, and the central valley is light gray. The bottom part shows a side elevation of the roof, labeled with '2' in red. The side elevation shows a large light gray area with the text 'SS-520-5' in red. Below this is a horizontal orange band, followed by a light gray band, and then a series of vertical lines representing a structural frame.

Keep all seems aligned during assembly.

Glue 5 onto the bottom of the rocket (part 2).

Glue 6 onto 5.

Fold-glue the fins back-to-back, glue each one to a black line near the bottom (part 2).

